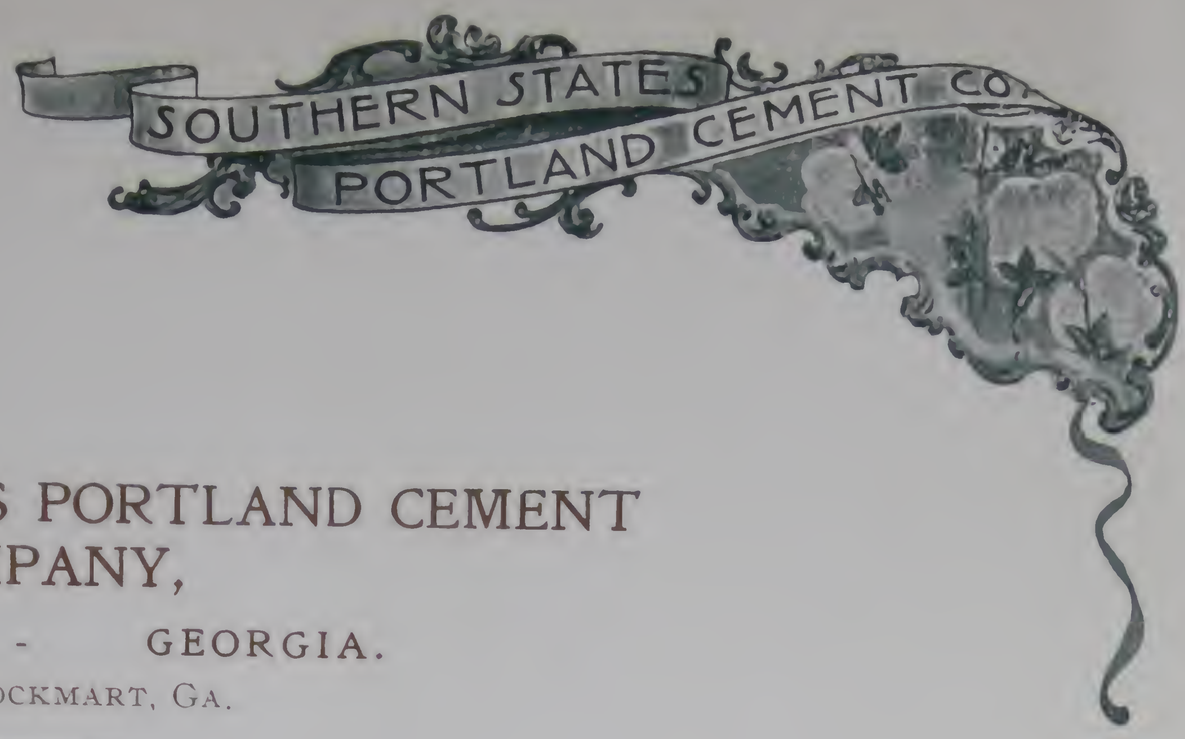
Southern States Portland Cement Company

NOT ONE BARREL OF PORTLAND CEMENT
IS PRODUCED IN

GEORGIA
NORTH CAROLINA
SOUTH CAROLINA
FLORIDA
MISSISSIPPI
LOUISIANA
KENTUCKY
TENNESSEE



SOUTHERN STATES PORTLAND CEMENT COMPANY,

ATLANTA, - GEORGIA.

MILLS, ROCKMART, GA.

AUTHORIZED CAPITAL:

Seven per cent. Preferred Stock, .	$ 750,000
Common Stock, ...	1,250,000

In Shares of $100 each.

FULL PAID. NON-ASSESSABLE.

The SOUTHERN STATES PORTLAND CEMENT COMPANY is incorporated under the laws of the State of Georgia, for the purpose of manufacturing and dealing in Portland Cement, crushed stone, roofing, and mill slate, electric and other power, and such other things as may be convenient and necessary to its business.

FINANCIAL PLAN.

The Company will issue its 7% preferred stock as ordered from time to time by the Board of Directors, but not to exceed $750.000.

The preferred stock, as provided in the certificate, "Is entitled to a fixed dividend of 7% per annum from July 1st, 1902, payable annually and cumulative until said shares of stock are called for redemption; the whole or any part thereof being redeemable by said Company at its par value with unpaid dividends at any time on or after July 1st, 1907. The preference as to stock and dividends extends to the assets as well as the earnings of said Company."

With each share of preferred stock one-half share of common stock will be issued, therefore whenever the preferred stock is retired the subscribers thereto will have received their principal, plus seven per cent. annual dividends, and still hold common stock to represent one-half their original investment.

Dividends on common shares will be declared as warranted by the earnings, after making required provisions for preferred shares, and provision for such extensions of mills and business as may, in the judgment of the Board of Directors be of advantage.

The proceeds of the preferred stock is estimated to be ample and sufficient to cover all expenses of constructing and equipping, with all necessary appliances, cement mills with a daily capacity of 1200 barrels, and also to provide a working capital.

The management will be under the control of experienced cement manufacturers and men well known in financial and business circles, whose connection with this enterprise establishes its position and assures its success.

A RARE DEPOSIT.

From a photograph, giving but a faint idea of the immense deposit of Portland Cement Limestone, on the property of the Southern States Portland Cement Company, Rockmart, Ga. Portland Cement made from this material, given the severest tests, proved to be of the highest quality.

THE SOUTHERN STATES PORTLAND CEMENT COMPANY IN THE FOLLOWING PAGES DESIRE TO SHOW AS CONCISELY AS POSSIBLE THE EXTENT AND EXCEPTIONAL VALUE OF ITS VAST DEPOSITS OF RAW MATERIALS WHICH NUMEROUS ANALYSES SHOW TO BE OF THE HIGHEST QUALITY AND FULLY EQUAL, IF NOT SUPERIOR, TO ANY KNOWN DEPOSIT IN THE WORLD. ITS CENTRAL LOCATION, ITS SUPERIOR SHIPPING FACILITIES; ITS GREAT NATURAL ADVANTAGES FOR MANUFACTURING THE HIGHEST GRADE OF PORTLAND CEMENT UPON A LARGE AND EXTENSIVE SCALE AT THE MINIMUM COST; AND THAT THE MANUFACTURE OF PORTLAND CEMENT IS A LARGE AND PROFITABLE BUSINESS.

PORTLAND CEMENT.

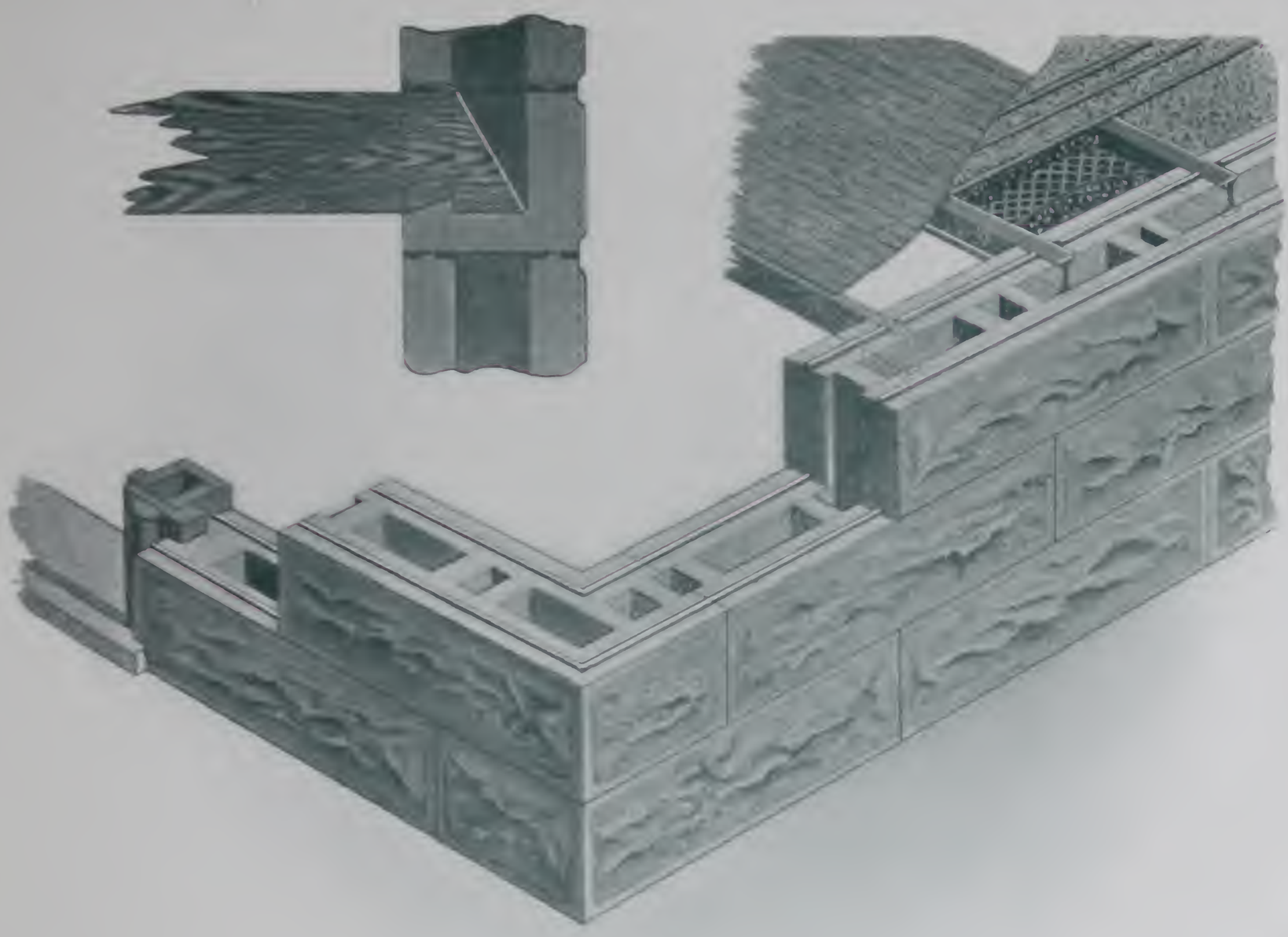
PORTLAND CEMENT BUILDING BLOCKS.

PORTLAND CEMENT, the strongest, most useful, and most trustworthy cementing material known, is a cindered product of finely ground and intimately mixed silicious shale, or clay and carbonate of lime. The requisites for the successful production of high grade Portland Cement are: purity of raw materials and proximity to each other, good shipping facilities and the best of modern machinery. The process of manufacturing Portland Cement is the result of both chemical and mechanical science; is not a trade secret, or patented process. It is essentially a simple question of having raw materials of the requisite composition and purity, and then to follow the best mill practice.

The process itself consists in grinding and mixing the raw materials in certain definite proportions, and burning at a heat just short of vitrifaction; the resulting cinder or clinker is ground to a powder, and constitutes the Portland Cement of commerce. The quality of the product depends upon the purity of the raw material, the care with which it is mixed and burned, and the fineness to which it is ground. Its great value for construction purposes lies in its peculiar property of hardening under water, so that it finally

becomes a solid rock; in its great tensile strength, its constant volume, and in the facility with which it can be moulded to take permanent shape.

These are the qualities which make Portland Cement one of the staple products of the world, and fully account for the rapid increase in its use, until to-day Portland Cement is regarded as one of the necessities in all modern construction.



Sectional view of wall built out of hollow Portland Cement Blocks, showing air chambers in wall, method of inserting wooden joists or steel I-beams for floor supports, method of fire-proofing with cement embedding expanded metal between beams and serving for floors above and ceilings below or embedding flush wooden strips on which, if desired, to fasten wooden floors and ceilings.

IMPROVED ROTARY KILN.

The above cut is from a photograph of one of the mammoth Rotary Kilns recently installed in the great works of the National Portland Cement Company, Durham, Ontario. This Rotary is of special design and is conceded by experts to be the crowning effort of engineering skill. The Rotaries to be used in the plant of the Southern States Portland Cement Co., Rockmart, Ga., will be of the same type, designed and installed under the supervision of the same engineers.

A BATTERY OF SIX MAMMOTH ROTARY KILNS IN THE WORKS OF THE NATIONAL PORTLAND CEMENT CO., DURHAM, ONT.

SILO BUILT BY McKENZIE & HOWELL, GODERICH, ONTARIO, WITH PENINSULAR PORTLAND CEMENT.

AMERICA'S SUPERIOR PRODUCT.

MR. WILLIAM HARPER, Manager of the Commercial Intelligence Bureau, of London, in a report says:

"The Americans have adopted a process of manufacturing cement by means of rotary roasting mills, which will drive England, France, and Germany practically out of the field. By the aid of simpler and better machinery the Americans are able to make their article in eight hours, while England with its ancient, cumbersome equipment, requires three or four weeks. The cost of the American product is less than half that of the English."

The industry in the United States is practically new. Only a few years ago all Portland Cement was imported from England and Germany. Gradually English makers lost control, and the German product became the standard, because of the greater care and more advanced methods employed by the Germans, producing consequently a higher grade of cement. To-day, however, the quality of cement manufactured in the United States, excels the foreign product. This is extremely gratifying to know, when the amount of technical skill required in making a high grade article, is taken into consideration. The reasons for the superiority of American Portland Cement, lies not only in unsurpassed raw materials but also in the modern and improved methods of American manufacture.

Mr. S. B. Newberry, who stands pre-eminent among the American Portland Cement chemists, speaking of the quality of Portland Cement now produced in this country, says:

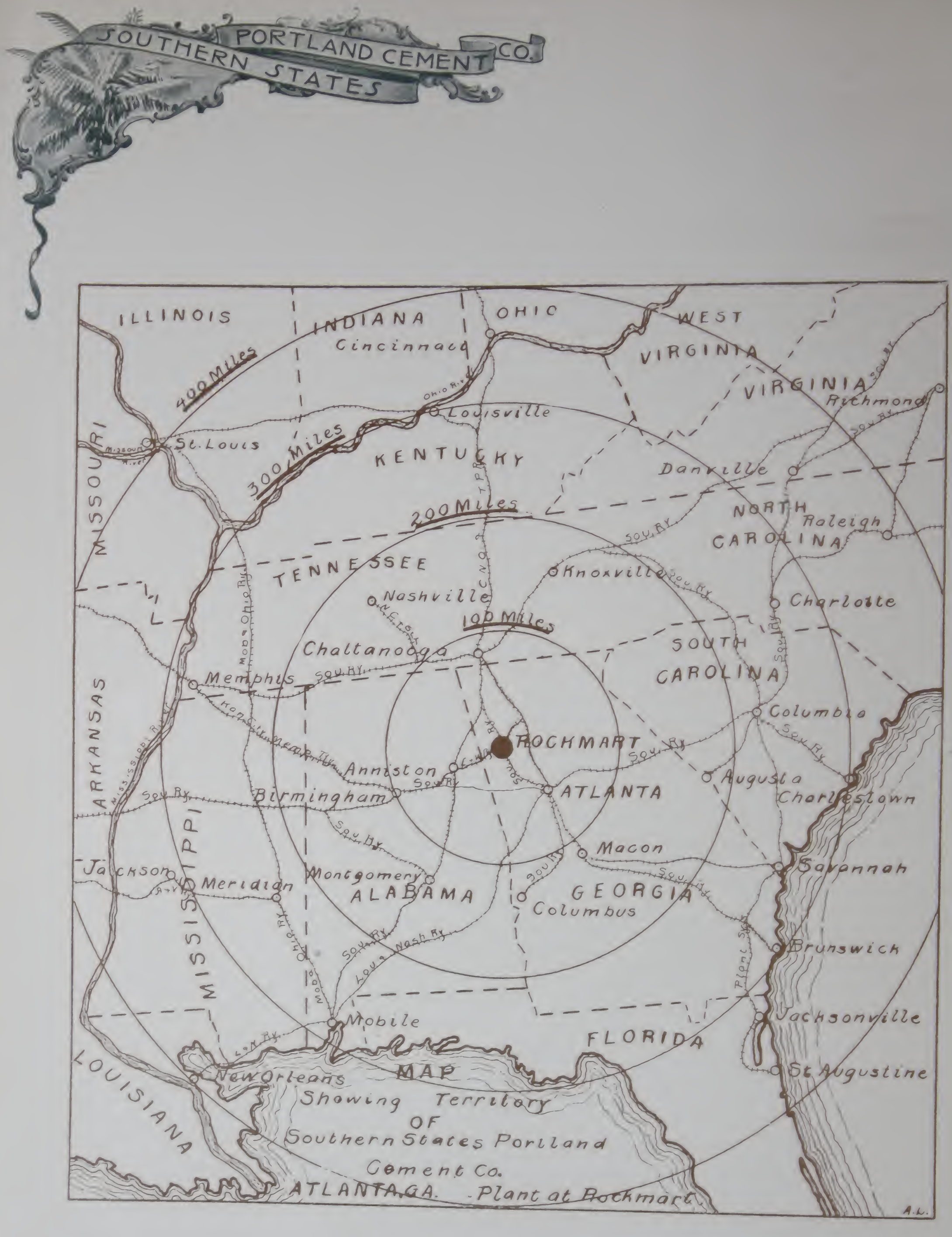
"No better testimonial can be found than that given in the reports of Mr. Richard L. Humphrey, Cement Inspector for the City of Philadelphia, for the years 1896 to 1899. These reports include tables, showing graphically the results obtained of all cements tested in the Philadelphia City Laboratory in the years mentioned. These tables show that the average of all American cements, both neat and with sand, is distinctly higher than the English or German. This evidence, with numerous similar records obtained by Government and private engineers, warrants the claim that there is to-day no Portland Cement made in any foreign countries that is equal in quality to the leading American brands."

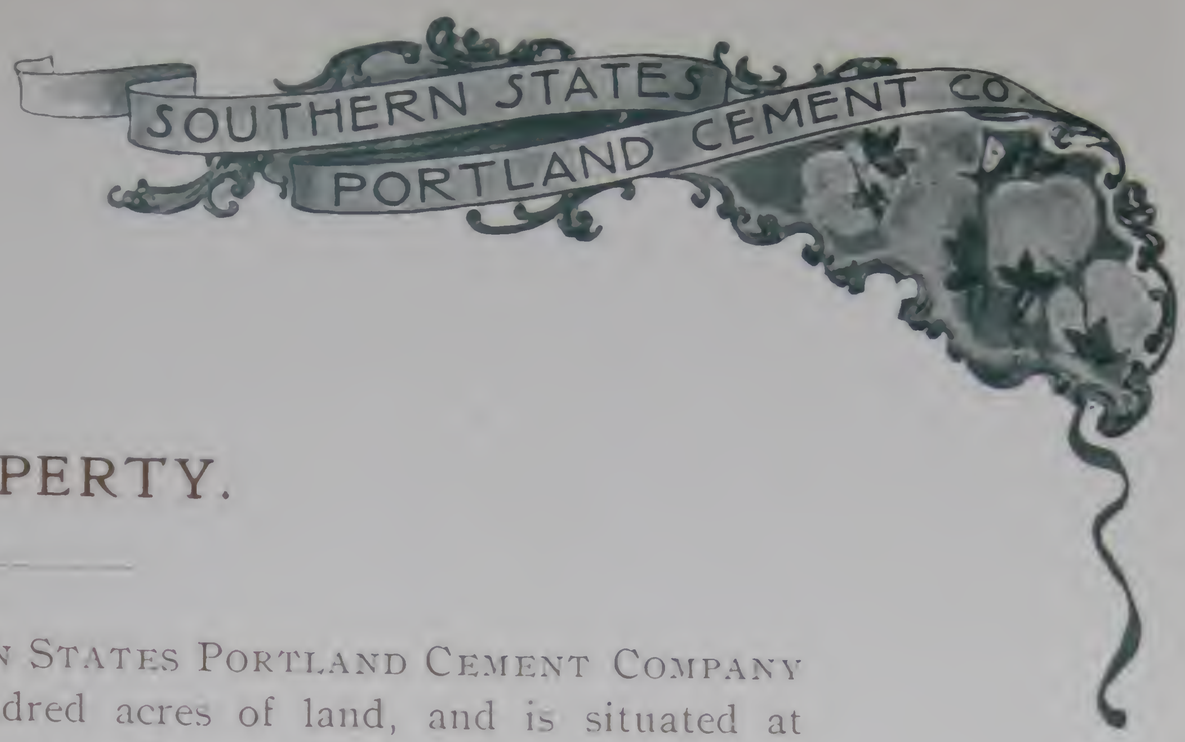
The Villa Zorayda, Mr. Franklin W. Smith's winter home in St. Augustine, a cement concrete monolith of elaborate construction, modeled after the Palace of the Alhambra, and erected in 1883.

VAST SLATE DEPOSIT.—One of the working faces of the Southern States Portland Cement Co., Rockmart, Ga.

SOUTHERN STATES PORTLAND CEMENT CO.

Residence of Mr. W. E. Ward, Port Chester, N. Y., a quarter century old, the first house in America to be built entirely out of Portland Cement Concrete. External and internal walls, towers, cornices, roofs, floors, ceilings, beams, closets, stairs, balconies, porticoes, and supporting columns, ALL MOLDED OUT OF CEMENT. Everything of a combustible nature excluded from the main construction.


SOUTHERN STATES PORTLAND CEMENT CO.
ILLINOIS
INDIANA
OHIO
WEST VIRGINIA
VIRGINIA
Cincinnacq
400 Miles
Ohio R.R
Louisville
Richmond
MISSOURI
St. Louis
Missouri River
300 Miles
KENTUCKY
Danville
200 Miles
NORTH CAROLINA
Raleigh
TENNESSEE
Knoxville
Nashville
Charlotte
100 Miles
SOUTH CAROLINA
Chaltanooga
Memphis
Columbia
ROCKMART
Anniston
Augusta
Charlestown
ATLANTA
Birmingham
Macon
Savannah
Jackson
Meridian
Montgomery
ALABAMA
GEORGIA
Columbus
Brunswick
Mobile
FLORIDA
Jacksonville
St Augustine
New Orleans
LOUISIANA
ARKANSAS
MISSISSIPPI
MAP
Showing Territory
OF
Southern States Portland
Cement Co.
ATLANTA GA. Plant at Rockmart
A.L.



PROPERTY.

THE property of the SOUTHERN STATES PORTLAND CEMENT COMPANY consists of about three hundred acres of land, and is situated at Rockmart, Polk County, Georgia, 51 miles north of Atlanta, 101 miles south of Chattanooga and 114 miles east of Birmingham. It is at the crossing of the Southern Railway and the East and West Railroad. The property is located near the geographical center of the Southern States; Georgia, Mississippi, Louisiana, Florida, North Carolina, South Carolina, Kentucky, and Tennessee, in which States *not one barrel of Portland Cement is produced.* It is centrally located in a rapidly growing section endowed with unlimited natural resources, cheap fuel, cheap and efficient labor and a kindly climate. Its position upon competing lines of railroad insures the lowest freight rates obtainable to Southern and South-western points.

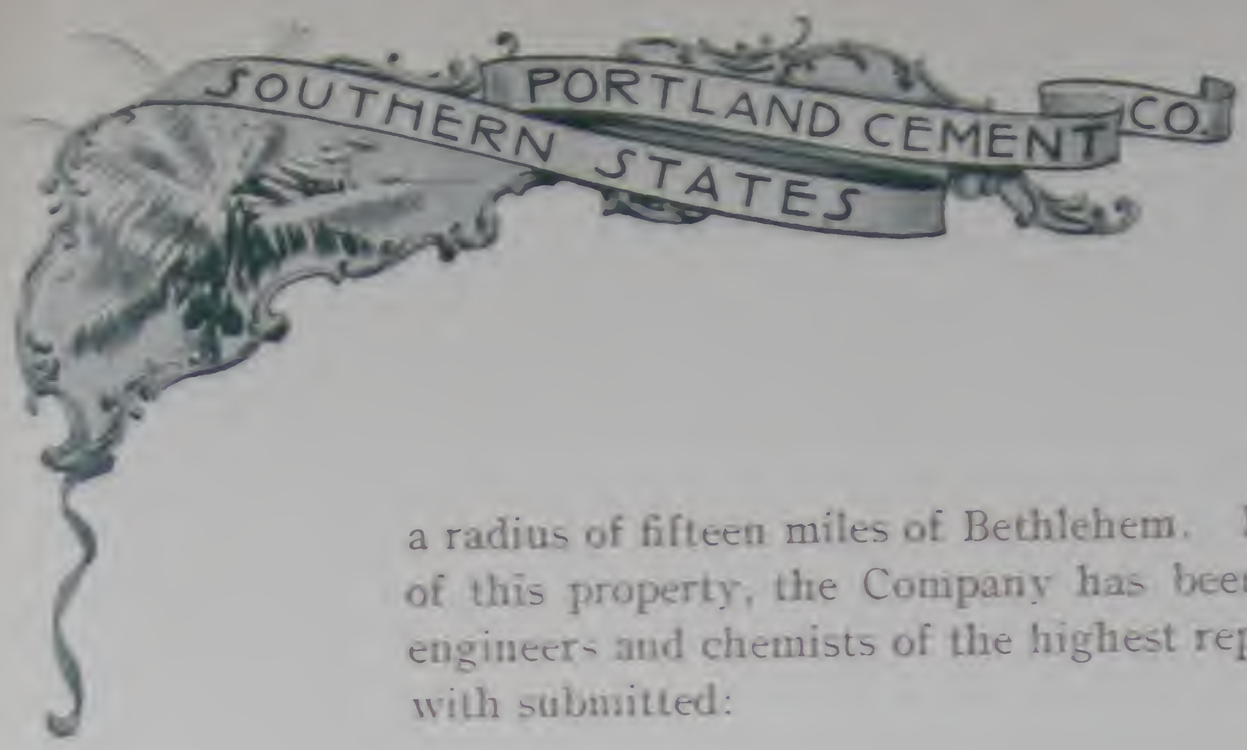
Included in the properties owned by this Company is the quarry of the Georgia Slate Company, the product of which was accorded the highest award given to slate at the Cotton States and International Exposition, Atlanta, 1895, when exhibited in open competition with the Roofing and Milled Slate of Pennsylvania and Virginia quarries.

CEMENT BRIDGE SPANNING 100 FEET.

This bridge crosses the Housatonic River at Stockbridge, Mass., connecting Laurel Hill and Ice Glen with an arch spanning 100 feet in the clear. The form, flatness, and extreme thinness at the crown of the arch give to the structure a very bold and graceful appearance.

RAW MATERIALS.

The raw materials contained on the Company's property are unlimited in extent, and are unsurpassed for the manufacture of the highest grade of Portland Cement. Such materials are hard to find, so hard indeed, that to-day over seventy per cent. of the Portland Cement produced in the United States is made in the Lehigh Valley region of Pennsylvania, entirely within



a radius of fifteen miles of Bethlehem. In the exploration and development of this property, the Company has been satisfied to employ only cement engineers and chemists of the highest reputation, and their reports are herewith submitted:

CHIEF ENGINEER,
W. B. BOGARDUS, M. E.,
Asso. Mem. A. S. M. E.

THE PENINSULAR ENGINEERING AND CONSTRUCTION COMPANY.

OFFICES: JACKSON, MICH.
TORONTO, ONT.

TORONTO, Oct. 21st, 1901.

MESSRS. COWHAM & VAN DEVENTER,
Rockmart, Ga.

Gentlemen—Complying with your request, I have made an investigation of your limestone and slate properties at Rockmart, Ga.

The property consists of extensive limestone and slate deposits in close proximity, but distinctly separate from each other. You have ample level land well drained and admirably situated for the location of a large cement works, to which the raw material from all your deposits can be easily and cheaply conveyed. This site is accessible by short sidings to the main line of the Southern Railway and the East and West R'y.

Upon digging several test pits, the ground was found to be excellent for supporting the foundations of the massive machinery used in modern Portland Cement works.

Most of the Portland Cement Plants of the Lehigh Valley region buy their limestone, which is shipped by rail, from quarries, in some instances located ninety miles away, freight costing more than the stone.

In economical slate quarries 65 to 70 per cent. of the slate quarried, on account of breakage, is of no commercial value and must be conveyed to the dump heap. You can transport this waste material directly from the quarry to your proposed cement works with but a small additional expense above what would be necessary to waste it on the dump, thereby obtaining a large proportion of your raw material for cement at a slight cost.

Your slate quarries show a good quality of slate, each strata is well defined, splits readily, and is of good uniform color. The quarry can be drained without pumping to the stream below.

The introduction of modern methods will make your quarry compare favorably with large slate quarries in the United States, many of which I have carefully examined.

From each of the four large limestone hills situated on the property, I took a number of samples of rock from the various strata, and from three of the working faces of the slate quarry I took several samples of slate. In accordance with your directions I forwarded all of these samples to Messrs. Dean & Potter, Cement Chemists, Jackson, Mich., for analysis.

In conclusion, it appears to me that you are in possession of very valuable limestone and slate properties. Their development together, their location so near each other, and their natural advantages, in my judgment makes it feasible to operate a Portland Cement works and slate quarry very economically on these properties.

Yours truly,

W. B. BOGARDUS.

SOUTHERN STATES PORTLAND CEMENT CO.

Laboratories of

Booth, Garrett & Blair,

Established 1836.

404 and 406 Locust St. Philadelphia, February 11, 1901.

Report of Tests of Cement made by us with limestone and shale received from Knoxville, Tenn.

Reported to Mr. Hugh F. Van Deventer, Knoxville, Tenn. No.

Specific Gravity 3.12

Fineness:

Passing No. 50 Sieve 100 %
" No. 74 " 99 %
" No. 100 " 97 %
" No. 200 " 82 %

Setting Time of Neat Cement.

Initial Set 1 h. 45 m.
Final Set 6 " 10 "
Per Cent. of Water 22
Temperature of Air 70 F.
Temperature of Water 65 F.

Constancy of Volume Tests:—

Normal Pat Tests (Am. Soc. Civ. Engrs.):—

Air Pats (A):— Sound and hard
Cold Water Pats (B):— "

Accelerated Tests:—

Hot Air Test (C):— Sound and hard.
Warm Water Test (Faija) (D):— "
Boiling Water Test (Michaelis) (E):— "

Tensile Tests of Standard Briquettes (1 sq. in. section)

Serial No.	Proportions of Mortar			Hardening Period			Date.		Strength in Lbs.	
	Parts Cement	Parts Sand.	% of Water	In Air	In Water	Total	Made	Tested	Briquettes	Average
4375									172	
4376									158	
4377	1	0	22	1 d.	.....	....	1/14	1/15	166	
4378									152	
4379									178	165
4380									648	
4381									620	
4382	1	0	22	1 d.	6 d.	7 d.	1/14	1/21	662	
4383									640	
4384									632	640
4385									230	
4386									246	
4387	1	3	11	"	"	"	"	"	226	
4388									240	
4389									232	235
4390									750	
4391									772	
4392	1	0	22	1 d.	27 d.	28 d.	1/14	2/11	730	
4393									748	
4394									754	751
4395									340	
4396									332	
4397	1	3	11	"	"	"	"	"	344	
4398									318	
4399									320	331

Chemical Analysis of Sample

Silica 22.71 %
Alumina 7.81 "
Ferric Ox. 2.81 "
Lime 63.74 "
Magnesia 2.40 "
Sulph. Anhydride

Hydraulic Index

Hydraulic Index Including Magnesia

Le Chatelier's Ratio

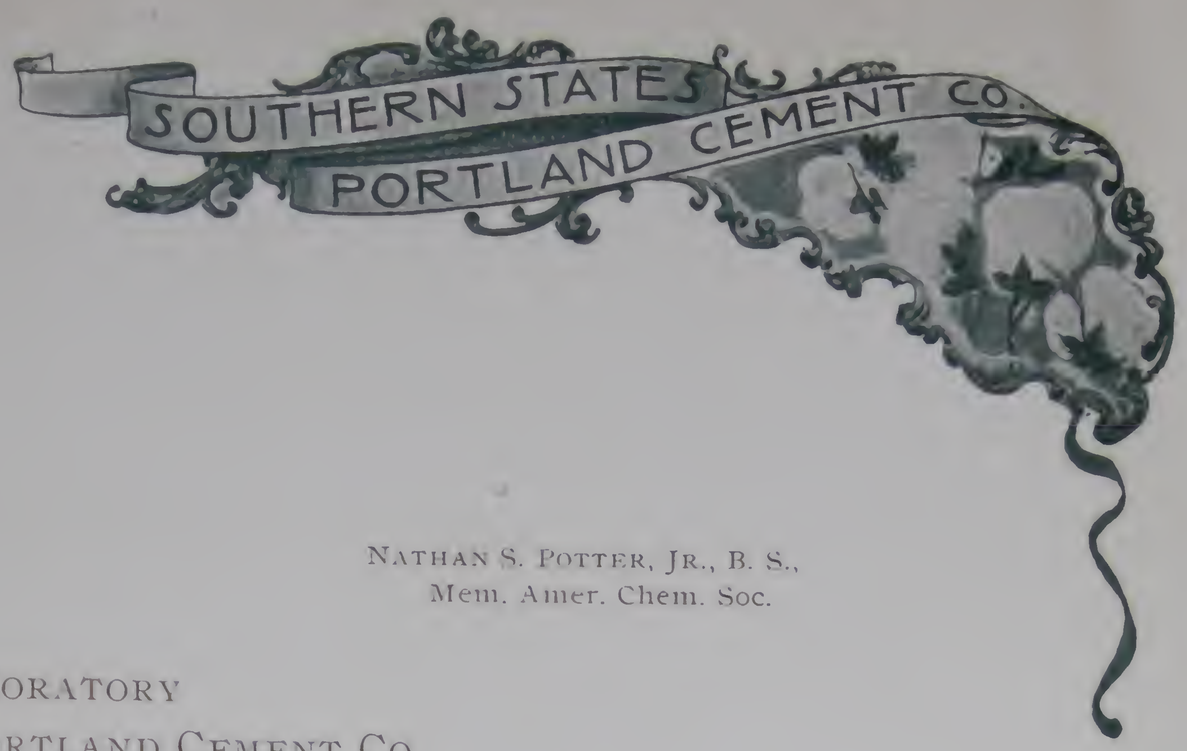
Yours respectfully,

Booth Garrett & Blair

SOUTHERN STATES PORTLAND CEMENT CO.

The walls of the Ponce de Leon are built of concrete made from Portland cement and Coquina sand. This hotel is probably more widely known than any other in Florida.

The Green Hotel is a magnificent structure in Southern California. Its walls are cement concrete reinforcing expanded metal. It is thoroughly fire proof throughout.



JOHN GODFREY DEAN,
Member Amer. Chem. Soc.

NATHAN S. POTTER, JR., B. S.,
Mem. Amer. Chem. Soc.

LABORATORY
PENINSULAR PORTLAND CEMENT CO.

MR. W. F. COWHAM,
MR. H. F. VAN DERVENTER,

CEMENT CITY, Mich., Nov. 1. 1901.

Gentlemen:—We submit the following report of analyses and tests made by us on the limestone and shale received from your engineer, Mr. W. B. Bogardus, Rockmart, Ga. An average of numerous samples of both limestone and shale showed the following:

ANALYSIS OF LIMESTONE.

Silica (SiO_2)	.52
Alumina (Al_2O_3)	.26
Iron Oxide (Fe_2O_3)	1.00
Lime (Ca O)	53.04
Magnesia (Mg O)	2.02
Volatile	42.86

ANALYSIS OF SHALE.

Silica (SiO_2)	57.35
Alumina (Al_2O_3)	21.18
Iron Oxide (Fe_2O_3)	3.77
Lime (Ca O)	4.85
Magnesia (Mg O)	2.
Volatile	7.10
	96.25

The analysis of the limestone shows 53.04% Ca O, which is equal to 94.71% pure carbonate of lime. It shows a very small percentage of magnesia, no sulphuric acid, and only 1.19% of organic matter.

The shale has necessary chemical composition, will grind easily, will require only a moderate heat for clinkering, and mixed with the limestone in proper proportions will produce a cement which will set slowly and have a high tensile strength.

From these analyses we conclude that both the limestone and shale are in every respect suitable for manufacturing a high grade of Portland Cement.

The materials were ground, mixed according to our formula, burned in a small test kiln, and the resulting clinker ground to a cement which showed the following physical characteristics:

PHYSICAL TESTS.

FINENESS.

Passing No. 100 sieve.....99%

SETTING TIME.

Initial Set.....4 hrs. 20 min.
Final Set.....6 hrs. 35 min.

CONSTANCY OF VOLUME TESTS.

Air pats.....O K.
Cold water tests,.....O K.
Steam test.....O K.
Boiling water test.....O K.

TENSILE STRENGTH.

(Briquettes 1 sq. in section.)

	24 hrs.	7 da.	28 da.
Neat	420	640	720
Sand 3, Cement 1	.....	380	430

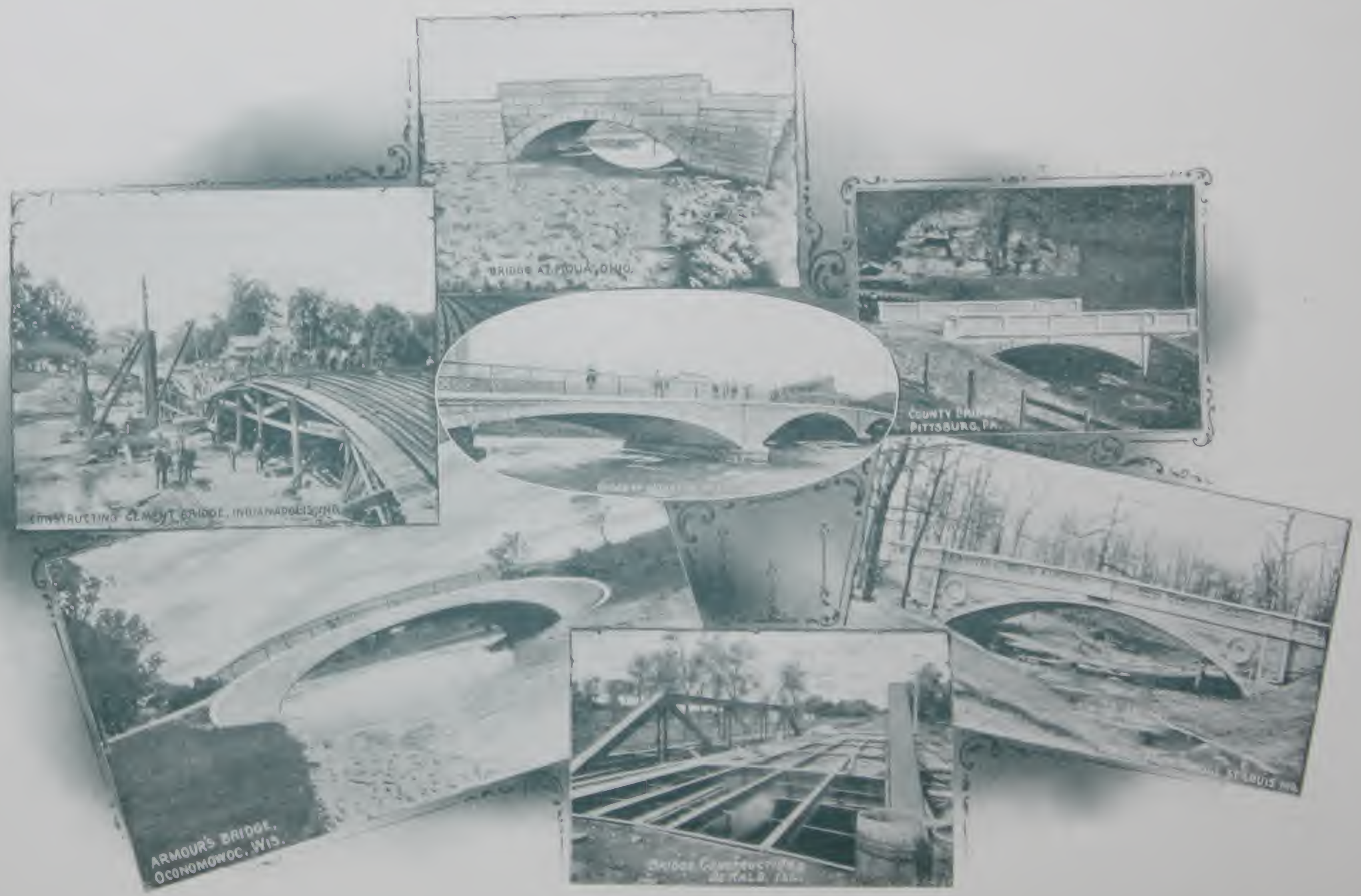
ANALYSIS OF ABOVE CEMENT.

Silica (SiO_2)	21.68
Alumina (Al_2O_3)	7.97
Iron Oxide (Fe_2O_3)	2.64
Lime (Ca O)	63.38
Magnesia (Mg O)	2.57
Sulphuric Anhydride (SO_3)	1.07

The above results show that from these raw materials a Portland Cement can be manufactured equal in quality to any produced in the world.

Yours respectfully,

NATHAN S. POTTER, JR.
JNO. GODFREY DEAN



CEMENT BRIDGE CONSTRUCTION.

The Piqua Bridge is a cheap, plain but durable style for small bridges in rural districts. The Indianapolis Bridge illustrates the method of embedding iron beams in cement concrete for the Melan Arch. The Armour Bridge shows the graceful low flat span possible in the Melan Arch system of bridge construction. The DeKalb Bridge has a floor of cement concrete slabs held in place by steel I-beams. The railing as well as the arch and floor of the Pittsburg Bridge is made out of Portland cement, expanded metal being used in its construction. The Paterson Bridge has three flat Melan arches, from 89 to 95 feet in length. It spans the Passaic River in the heart of the City of Paterson, N. J., and is 54 feet wide. It carries a double track electric railroad and heavy traffic. The St. Louis Bridge shows elaborate decoration possible on the concrete arch. The entire structure, including face and railing with balusters, is molded from Portland cement.

SOUTHERN STATES PORTLAND CEMENT CO.

TENSILE STRENGTH PER SQUARE INCH OF THE LEADING AMERICAN AND FOREIGN BRANDS OF PORTLAND CEMENT.

BRAND.	NEAT.			1 CEMENT, 3 SAND.		AUTHORITY.
	24 hrs.	7 da.	28 da.	7 da.	28 da.	
Southern States	**420**	**640**	**720**	**380**	**430**	J. G. Dean & N. S. Potter, Jr.
Saylors.....Amer.	225	558	636	185	245	R. L. Humphry.
Hercules..... "	209	314	425	90	135	"
Medusa..... "	563	626	776	192	295	"
Alpha..... "	294	660	780	194	269	"
Atlas..... "	440	638	728	189	248	"
Hemmour.....Ger.	221	466	502	191	263	"
Heyn..... "	308	531	577	174	227	"
Mannheimer..... "	211	483	585	177	237	"
Laegerdorfer..... "	.....	451	519	151	252	Booth, Garrett & Blair.

The Casa-Monica is the finest monolithic cement hotel in the world. Face frontage 400 feet, tower 100 feet high, balconies, arches, cornices, battlements, walls, floors, ceilings, *all of Portland cement concrete*. This hotel was built in 1887.
FRANKLIN W. SMITH, Architect.

BIRD'S-EYE VIEW OF PENINSULAR PORTLAND CEMENT COMPANY'S WORKS, CEMENT CITY, MICHIGAN.

Similar works of greater capacity will be built at Rockmart, Georgia,
under the supervision of the same engineers.

FACTORY.

THE SOUTHERN STATES PORTLAND CEMENT COMPANY intends to construct mills and works at Rockmart, Georgia, which will be the product of the best mechanical and engineering skill obtainable, and having an estimated daily capacity of twelve hundred barrels. The power generated will be electrically distributed throughout the plant, which will be modern in every detail; the buildings will be convenient and equipped with the best and strongest types of machinery, specially designed for this plant. Under the circumstances, a most economical and perfect mixing, grinding and clinker burning process is insured, and hence the best product obtainable.

The SOUTHERN STATES PORTLAND CEMENT COMPANY is especially fortunate in having associated with them a staff of the most competent and practical cement engineers in the country, who have designed and superintended the construction of some of the most successful mills in North America; their last and crowning success being the splendid plants of the Peninsular Portland Cement Company, of Jackson, Michigan, and the National Portland Cement Company, Ltd., of Durham, Ontario, which are generally acknowledged by experts to be the most modern and best equipped Portland Cement mills in the world.

THE NATURAL ADVANTAGES

Of a Portland Cement proposition consists of *raw materials, location of plant, cost of fuel, transportation facilities, choice of mechanical appliances, and price of labor.* All of these the SOUTHERN STATES PORTLAND CEMENT COMPANY possesses to an extent unequalled and unknown to any other producer. Coupled with these natural advantages, it is extremely fortunate in having that no less important factor of success, the competent and expert management of men thoroughly familiar with every detail of cement manufacture.

One of the first essentials to the manufacture of Portland Cement is an abundant supply of good free-burning coal, both for power generation and fuel for the rotaries. In this respect the SOUTHERN STATES PORTLAND CEMENT COMPANY is most favorably located, the great Southern coal fields being closer to its plant than the Western Pennsylvania or Eastern Ohio coal fields to any other cement producing district of the United States.

To many other advantages may be added an extremely favorable climate which permits out-door work and the use of cement in concrete construction and building operations throughout the entire year. Many of the Northern cement plants are compelled to shut down, and building operations cease during the extreme cold of the Northern winter months.

The Chatellerault bridge differs markedly in construction from any other bridges here shown. It is a French structure, and the most important bridge built out of armored concrete up to the present time. It has three arches flattened to one-tenth their length. The central arch spans 266 feet, the lateral arches 233 feet. The entire structure, piers, abutments, arches, driveway, etc., is but a single mass of concrete, though the light airy construction characteristic of armored concrete work would suggest otherwise. Under a load of two-thirds ton per square yard the arches showed only slight deflection, not equaling one-sixth the allowable deflection in plans and specifications. This bridge illustrates admirably the Hennebique system of construction.

Transportation charges constitute an important factor in determining competition between the products of different factories of nearly equal quality. The products of the Portland Cement plants of the Northern States, especially of Pennsylvania and Michigan, where most of them are located will be excluded from the market of the Southern States by transportation charges alone, as soon as a high grade Portland Cement is produced nearer the market where used. Not a barrel of Portland Cement is now made in Georgia, the Carolinas, Florida, Mississippi, Louisiana, Kentucky, and Tennessee. The consumption in these States, now enormous, is still in its infancy and there seems to be no limit to its future growth.

CEMENT BRIDGE OVER THE KANSAS RIVER AT TOPEKA.

The Topeka bridge is the largest cement concrete bridge in the world. It has five spans, the centre span alone having a clear length of 125 feet. For the purpose of saving the wing-wall foundations the construction provides at the ends cantilever wing-walls made of monolithic concrete. This bridge and the footbridge shown in the following cut are extremes in the Melan Arch construction

SOUTHERN STATES PORTLAND CEMENT CO.

A GREAT AND STAPLE INDUSTRY.

IT is a noticeable fact that the consumption of Portland Cement in all countries is increasing with most wonderful rapidity. In the United States alone, during the past five years, the consumption of Portland Cement has increased at the average rate of over one million barrels per year. From the reports of the Department of the Interior, we learn that the United States consumed in 1900 ten million seven hundred and twenty-eight thousand seven hundred and sixty-four barrels of Portland Cement, an increase of over three million barrels over the consumption of the previous year. Imports were also increased during the year 1900 by two hundred and seventy-eight thousand two hundred and ninety-five barrels as compared with the amount imported in 1899.

In England, the home consumption of Portland Cement averages about eighty-five pounds per capita, and in Germany one hundred and thirty pounds per capita. Germany, with a population of fifty million, consumes over seventeen million barrels of Portland Cement, about five million barrels more, or over three time per capita, more than the United States.

Rock Excavations, containing mills, elevators and plant shown above are all constructed out of Portland Cement.

HOLLOW PORTLAND CEMENT BUILDING BLOCKS AND MACHINE.

In 1900 the production of American Rock or Natural Cement was about one hundred thousand barrels less than the production of Portland Cement, this being the first time in the history of the Cement industry in the United States that the production of Portland Cement was greater than that of Natural Cement. It is obvious that Portland Cement is destined to completely replace the Natural or Rock Cements in America, as it has already done in Germany, where previous to 1852 every barrel of cement made was Natural or hydraulic cement.

The rate of increase in the consumption of Portland Cement in the United States, has perhaps not been equalled by any other article used. We are just now awakening to the manifold uses of Portland Cement, of its superior qualities as building material over all others, and its economy for construction.


CEMENT BREAKWATER, MARQUETTE, MICH.


CEMENT BREAKWATER, CLEVELAND O.

Over 8,000 barrels of Portland Cement were used in construction of the Cleveland breakwater. The concrete superstructure of the breakwater top surface and parapet. The Marquette pier extends into the Mediterranean over two and a quarter miles, and is built up from large armor blocks dumped somewhat promiscuously into the sea. In the construction of artificial blocks were employed, representing a great saving in comparison with cost of stone.

In this connection the *Cement and Engineering News* is quoted as follows: "The use of Portland Cement is rapidly displacing stone, brick, wood, and terra cotta for dry docks, fortifications and gun emplacements, locks, and dams, sewers, tunnels, culverts, foundations for office buildings,

CEMENT RESIDENCES.

These houses, built out of Portland Cement embedding expanded metal, give eminent satisfaction and are meeting with marked popularity; as cement constructions generally have done. When once such a building is erected in a community others of like character immediately follow it. Hence it is that certain localities like Southern California, Southern Ohio and Northern Illinois afford so many illustrations of such structures.

break-waters, curb walks, retaining walls for wharves, concrete piling, bridges over rivers and public highways, side-walk, curb and gutter construction, barn floors, fire-proof floors, roofs, shingles and tiles; factory chimneys are being constructed entirely of concrete, some over one hundred and fifty feet high, pipes for water service in cities, mill races and water wheel housing, treacherous earth cuts along the lines of railways are being covered with concrete. Reservoirs for city water supplies, fodder silos, grain elevators one hundred and fifty feet in diameter are in use in Europe, and one of nearly two million bushels capacity has recently been erected at Duluth, Minnesota. Concrete engine beds have almost entirely displaced stone and brick. The piers carrying two of the elevated railways in Chicago, are constructed entirely of concrete, while in New York and London underground railways will consume many millions of barrels. Foundations for street pavements are coming into very extensive use. Concrete sewers are being constructed in many cities of Europe and the United States. Irrigating flumes and canals use large quantities of Portland Cement, and the proposed Nicaragua Canal will consume many millions of barrels. The Illinois Central Railway, extending from Sioux City, Ia., to

These bins are 15 in number with capacity sufficient to hold about a million bushels of grain. Each is over 100 feet in height and more than one-third as large in diameter. The entire structure is in Portland cement concrete and planned somewhat after European models that have given unqualified success for years. The work of construction was completed during the year 1900 at a cost approximating a half million dollars.

ATRIUM IN THE POMPEIA AT SARATOGA, N. Y.

The Pompeia is the exact reproduction of a Roman house in Pompeii known as the House of Pansa. It is constructed full size of the original, two hundred by seventy-five feet, covering an area of fifteen thousand square feet. An elaborate roof garden covers part of the building. There is no superior reproduction of this kind in the world. All the parts of a Roman house are reproduced in exact detail, the furnishings corresponding. The Pompeia has therefore been for the last ten years the Mecca for students of History and Art visiting at Saratoga. Portland Cement is used throughout the structure, and its wearing qualities here shown are conspicuously noteworthy.

New Orleans, Louisiana, uses concrete for its bridges, piers, abutments, retaining walls, culverts and other improvements where stone and brick have heretofore been used, and this example is being followed by many other railways. The railways of India, Ceylon and Egypt erect their stations and approaches to the same out of concrete. In Germany forty per cent. of the burnt clay roofing tile has been substituted by concrete tiles during the past ten years. Concrete railway ties are coming into use in Europe and Oriental countries, and are being tried in the United States. Concrete blocks moulded in imitation of terra cotta are extensively used for external walls of dwellings and business houses.

Artistic tile are extensively used throughout Europe. The floors and wainscoting of the Parliamentary buildings at Berlin, Germany, are decorated with concrete tile, as well as the private residence of the Emperor, and public libraries and other private and public buildings making pretensions to artistic effect.

Many of the best bridges of Europe are constructed of concrete and steel of the Monier system, while several hundred barrels of cement are used in single fortifications in Germany and France. Twenty million dollars worth of underground concrete work was under contract in England alone in 1900. Concrete railway fence posts are extensively manufactured in the United States and Europe.

Germany manufactures about twenty million barrels of Portland Cement and consumes about seventeen million barrels. England is importing cement from Belgium and Germany, and prices have increased in Europe notwithstanding numerous large mills have been erected during the last few years. The demand has always been in excess of the supply. The trouble the last few years has been, with railroad engineers and contractors, and the builders' trades in general, "where shall we obtain the cement we require?" We are importing every barrel we can buy from Europe, and still the supply is short.

PERISTYLIUM IN THE POMPEIA AT SARATOGA, N. Y.

The floors, walls, pillars, caps, architraves, etc., all made out of Portland Cement, have had twelve years' wear and are as perfect to-day as when completed in 1889.

CEMENT COMING TO THE FRONT

It Now Takes the Place of Wood and Metals in Many Kinds of Structural Work.

The Railroads Are Large Users of Portland Cement.

Portland cement is now taking the place of wood, stone, iron and steel in many kinds of structural work. Every railroad line of any importance in this country is now beginning to use Portland cement for constructing culverts, bridge piers, abutments, retaining walls, entire bridge arches, etc. The Illinois Central railway during 1900 spent $140,000 on concrete structural bridges. This in stone would represent an expenditure of $300,000. They spent as much more on their concrete work. They have a 40-foot concrete arch over Green creek near Effingham, Ill., and a 36-foot concrete arch over Brushy creek, near Mattoon, Ill.

The largest user of Portland cement for concrete work in Michigan is the Michigan Central railway. The masonry of the new Woodward avenue grade crossing, Detroit, is all of concrete, and not a bit of stone work. The other grade crossings will be the same. It has a 50-foot arch bridge of structural concrete work over the Western boulevard, Detroit. In West Detroit it has just replaced a double stone box with a 15-foot concrete arch and a 15-foot span, and is now constructing concrete structural bridges at Grand Rapids and Riverside, Mich. Its concrete is all made in the proportions of one barrel of Portland cement, two and one-half sand and four and a half broken stone. A cubic yard of concrete will cost about $5, while a cubic yard of stone will cost from $10 to $12, so this makes an important saving.

The Michigan Central has been using concrete for about six years now, and is using more of it every day. The Pere Marquette and the Wabash have only begun to use Portland cement concrete within the last year or two, but are already becoming large users of it. The Pere Marquete is building an immense retaining wall between the freight and passenger yards, Detroit, that is 717 feet long and in parts 16 high. It is about 4 feet wide at the base and nearly 3 feet at the top. It is building the first entirely concrete bridge in Michigan over the River Rouge at Northville. This has two 20-foot arches and not an ounce of steel enters into its construction. As fast as all cattle guards, culverts, etc., need reconstructing they are being replaced with concrete. The proportions for ordinary concrete is one barrel of Portland cement to one cubic yard of excellent quality gravel that has a natural mixture of gravel and sand.

The Wabash is using concrete work between Maumee and Montpelier and Butler and New Haven, Ind., for all piers, abutments, culverts, etc. Every railroad in the United States now has cement specifications, because Portland cement concrete is recognized as furnishing the cheapest and most durable construction, and makes a big saving in transportation expenses. The Portland cement age is just beginning, and Michigan has a great era before her in the manufacture of this material that now has such a wonderfully increasing demand.

PROFITS.

CAREFUL investigation of the Portland Cement industries in all countries, proves conclusively that it has been universally a profitable and staple business. The splendid dividends made by some of the present crude and poorly equipped mills in this country are well known. Germany, a cement exporting country, with most of its product still manufactured under the old crude and extravagant system, laboring also under the disadvantages of sharp competition, heavy export shipping rates, payment of large duties and tariffs, has always made handsome dividends on its cement properties, as is shown by the following table, taken from the authentic report of the *Thonindustric-Zeitung* of Berlin, Germany, relative to the dividends paid in 1898, and 1899, and the market price of stock of the principal and best known German Portland Cement plants on August 27th and 28th, 1900:

KURSTABELLE

AKTIEN

NAME.	DIVIDENDE		GESCH JAHR	KURS 1900	
	1898	1899		27-8	28-8
Adler, Deutsche Portl.-Cem.-Fabr. conv	14	25	1-1	170.00 bzG	171.00 bzG
Alsen'sche Portland-Cement-Fabriken	21	25	1-1	214.00 bzG	214.00 bz
Deutsche Steinzeugwarenfabrik	13	17	1-1	280.50 B	280.50 B
Portland Cement-Fabrik Hemmoor	15	15	1-1	129.80 bz	129.40 B
Porzellan-Fabrik Kahla	24	25	1-1	314 00 G	312.00 bzG
Lothr. Cementwerke	12½	14	1-1	169.75 G	167.75 G
Nauheim, Fabrik saurefester Produkte	15	15	1-1	150.60 G	150.50 bz
Porzellanfabrik Konigszelt	14	14	1-7	192.75 G	191.00 bzG
Stettiner Chamotte-Fabrik (Didier)	25	30	1-1	334 00 bzG	331.25 bzG
Vorwohler Portl.-Cem	18	18	1-1	179.00 G	174.10 bzG
Westfalia, Portl.-Cem.-Fabr. i. Beckum	33	25	1-1	189.00 bz	185.00 bzG
Schlesische A.-G. f. Portl.-Cementfabr	17	17½	1-1	157.50 G	157.00 B
Portland-Cementfabrik Gossnitz	15	20	1-10	not reported	not reported
Ziegelei Augsburg i. Augsburg	10	15	1-12	325.00 G	330.00 bz
Porzellan-Fabrik Kahla i. Kahla	24	25	1-1	318.00 bz	not reported
Porzellanfabrik Kloster-Genussscheine	17½	21¼	1-1	not reported	not reported
Sachs, Ofen- u. Cham.-F. (E. Teichert)	24	25	1-1	not reported	not reported
Hannoversche Portl.-Cem.-Fabr. A. G.	20	25	1-1	170.00 B	170.00 B
Portland-Cementfabrik vorm. Heyn Gebr... A.-G., i. Luneburg	16	18	1-1	147.00 bB	145.00 bB
Verwohler Portl.-Cem -F. Planck & Co	18	18	1-1	180.00 B	180.00 B
Actien-Ziegelei Munchen	12	15	1-1	885 00 G	not reported
Mechanische Backstein-Fabrik	16	10	1-1	not reported	850.00 G
Cementfabr. Groschowitz	17	17½	not rep	not reported	not reported
Stettin-Bredower Portland-Cementfabr	12½	14	1-1	140 00 bz	140.00 G
Wickingsche Portl. C.-F. Recklinghaus	16	13	1-1	not reported	not reported
Schwarzmeer Cem.-Fabr.	45	40	1-1	320.00 B	320.00 B
Gluchoosersk.-Ges	40	not rep	1-1	300.00 B	300.00 B

The United States has also universally good paying cement mills as will be seen from the following articles of the press of this country:

SOUTHERN STATES PORTLAND CEMENT CO.

CEMENT SEWER PIPE, DUARTE, CAL.

LAYING CEMENT SEWER PIPE.

WACHUSETT'S RESERVOIR, MASS.

SECTION OF CEMENT CONDUIT

The crown of the reservoir is of solid cement concrete. The short lengths of cement sewer pipe shown are two or three feet in diameter and are made in crude moulds without expensive machinery and need no burning but only maturing by being kept wet for a few days. The last cut illustrates a very remarkable test made in June, 1900, by the New York Expanded Metal Company, on a portion of the conduit for the Jersey City water supply. Fifteen days after the section had been made *25 tons of steel rails were piled on the section.* Three rails weighing approximately a ton were then twice dropped on one end of the loaded arch; all this produced only a deflection of 3-16 inch in height of arch with a few cracks. On removing the rails half a month later *the arch resumed its original form with practically no damage.*

"It is generally conceded that securities based on the Portland Cement industry have a very promising future in view of the broadening field for operation of the companies. Stock in the American Cement companies, it seems to many, is a very attractive purchase around current quotations. But very little of this issue, however, comes on the market, due to the fact that it is closely held by investors."—*Stockholder, Philadelphia, Pa., February, 1900.*

"The biggest cement deal in the history of this industry was consummated to-day in the sale of the plant and property of the Coplay Cement Company. The concern will shortly pass into the hands of the new owners, who are Philadelphia and London capitalists. The syndicate purchased all the stock of the Company. The par value of the latter was fifty dollars a share, and on this the Company had for some years been paying an annual dividend of thirty-two per cent."—*Philadelphia Times, May, 1900.*

ST. JAMES CHURCH, BROOKLYN, N.Y.

The St. James Church covers an area of over 11,000 square feet, and has four gables 60 feet high and a tower 80 feet high. It is built according to the Ransome monolithic system, entirely of Portland cement concrete embedding cold twisted steel rods. It has an exterior appearance of rock-faced massive granite; and from the standpoint of durability and beauty it is admitted to be much superior to a church that stands near by constructed of natural stone at three times the cost.

"The gross business of the American Cement Company at Philadelphia, for the four months ending March 31, shows an increase of eighteen per cent. over the corresponding period of last year. The balance sheet showed a surplus of quick assets over current liabilities of two hundred and forty-three thousand dollars."—*Cement and Engineering News, May, 1900.*

The following prices show the value of Portland Cement in other countries:

City of Mexico—wholesale, $8.50 to $9.00 Mexican currency, $4.04 to $4.28 per barrel; retail, $10.00 to $11.00 per barrel.

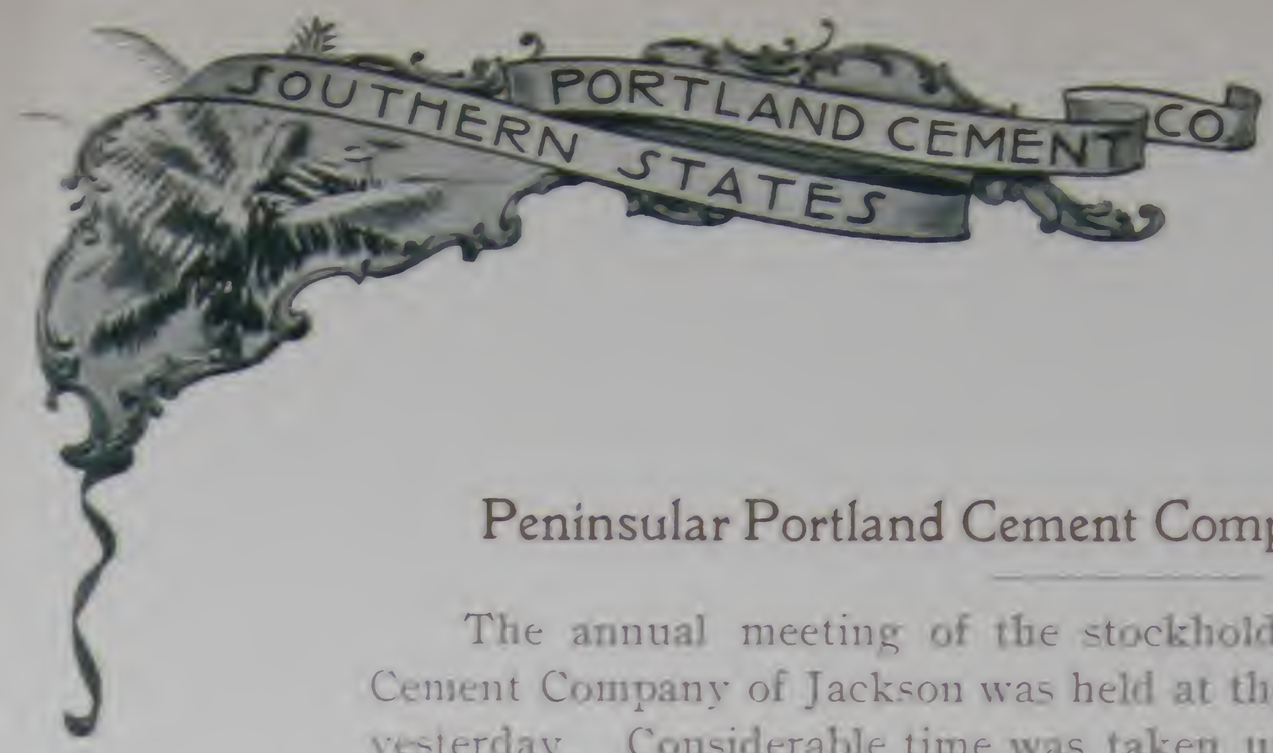
British Honduras—wholesale, $3.50 per barrel.

The Bahamas—$4.50 per barrel.

Haiti—$10.00 per barrel, Haitian currency.

Chile—In Chilean paper money, $11.00 per barrel, retail; wholesale, 50 barrels and upwards, $9.25.

—*Extracts from Washington Information Department of State to Detroit Tribune, June 7th, 1901.*



Peninsular Portland Cement Company to Double Capacity.

The annual meeting of the stockholders of the Peninsular Portland Cement Company of Jackson was held at the common council chamber here yesterday. Considerable time was taken up in hearing reports of officers, but those reports, while matter of fact, showed such a happy condition of affairs from an investor's standpoint that the stockholders were convinced, of what the directors had previously observed, that the Peninsular Portland Cement plant is without a peer in the whole country.

The stockholders were elated with knowing that they own a cement plant in which is installed the very latest improvements for the process of making cement. The excellent physical condition of the plant has permitted the factory to run during the coldest weather without shortening the output, while most factories throughout the country have to close down during the winter. Not since the plant was first started has there been a shut-down for a minute.

W. F. Cowham, general manager of the plant, gave some interesting points of the business to the stockholders. The output of the plant for last year was sold before August and the traveling salesmen were then called in. More than half of the output for the coming year is already contracted. Not a sack of cement, to say nothing of a carload, has ever been rejected or returned, and not a cement bill, now due the company, remains unpaid. The cement is much desired, because of the greater porportion of sand which can safely be mixed with it, in its ordinary use.

The good feeling of the stockholders on account of their gilt-edged investment and because of the wise business administration of General Manager W. F. Cowham and the directors, was, indeed, a remarkable feature of the meeting. The stockholders were not inclined to make changes, being more than satisfied with Mr. Cowham's management of affairs, and they re-elected the board of directors entire.

Another important step was taken, in view of doubling the capacity of the plant. The company by reason of its improved process of making a superior quality of cement finds a ready market for more cement than it could make at the rate of 5,000 barrels a day. With these favorable trade conditions and the superb showing of the plant under the present management during the past year, confronting the stockholders, they readily voted in favor of directing the board of directors to mature a plan for doubling the capacity of the present extensive cement works at Cement City, and report the plan to the stockholders. A large portion of the stockholders expressed a willingness to double their amount of stock.

The Peninsular Portland Cement Company is not only an industry of which the county justly feels proud, but it is becoming one of the principal business industries of the State. The plant at Cement City is a model, and visitors from all over the world are attracted there through its rapidly growing reputation.—*Jackson, Michigan, Daily Patriot, Jan. 22, 1902.*

From most conservative estimates based on the experience of the American Cement Industry, and taking into consideration our advantageous location, splendid raw materials, plant of the very best mechanical equipment, ready means of transportation, competent and experienced management, the production of a staple article in an ever-growing unsupplied market, with freight rates from fifty cents to one dollar per barrel in our favor, we are entitled to the conclusion that the earnings of the SOUTHERN STATES PORTLAND CEMENT COMPANY should be far in excess of any other mill of like capacity in the world.

A PORTLAND CEMENT SILO.

There is no longer a question as to whether ensilage pays; every careful investigator knows it does. The question to-day is what sort of silo will serve best the purpose. Wood decays readily in such structures, ordinary masonry is not impervious to moisture, metal is expensive and corrodes, and none of these materials afford permanent structures or remain for any length of time air-tight. The above illustrated use of Portland Cement is therefore sure to make strong appeal to the progressive stock-raiser.

For a cement silo is not affected by the juices of the silage, is non-corroding and impervious to moisture, and can be made absolutely air-tight to last for generations.

Various styles of construction are possible. The illustration above shows a silo built with expanded metal (M) embedded in cement concrete (C C'). The hole broken in the side-wall shows the inner and exterior cement coats and the expanded metal embedded within the concrete mass.

Twenty barrels of Portland Cement will be sufficient to make such a silo large enough to contain 100 tons of silage, providing for floor, walls, roof, and panels for closing doorway, all being made out of good cement concrete.

CEMENT RESIDENCE, CINCINNATI, OHIO.

CEMENT RESIDENCE, EVANSTON, ILL.

CEMENT RESIDENCE, PITTSBURG, PA.